

Taxes V. 14.

AN
ESSAY
ON THE
NATURE
OF A
LOAN:
BEING AN
INTRODUCTION
TO THE
KNOWLEDGE
OF THE
PUBLIC ACCOUNTS.

Y O R K:

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INTRODUCTION
TO THE
KNOWLEDGE
OF THE
PUBLIC ACCOUNTS

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AN
E S S A Y
ON THE NATURE OF
A L O A N.

KNOWLEDGE of the Finances of the kingdom, has been generally supposed very difficult to acquire, and confined alone to a few very enlightened Statesmen.

No body will dispute the propriety of that knowledge being extended to all who contribute towards the expence, although many may doubt the possibility of extending it so generally.

The intention of this essay is, therefore, to shew, that by a supposed, and not a real difficulty in attaining it, this knowledge has hitherto been almost a mystery, not only to the bulk of the people, but even to those whose situation in life calls on them every day to form a judgment, and give a solemn vote on
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the occasion, by which the property of all their fellow-subjects is to be bound: And further, that to attain it, no greater skill in figures is requisite, than what is necessary for a tradesman to keep the accounts of no very considerable shop.

For this purpose it was proper to begin with the plainest and simplest propositions, and to study rather clearness than elegance of language.

It is presumed very little need be said to prove the utility of such a publication, at a time when such immense additions are making to the National Debt. If a Minister should ever give unreasonable interest for the purposes of corruption, or if he has truly administered the affairs of the public with fidelity, it is, in either case, right for that public to be enabled to judge of the propriety of the bargain made in their names, that their censure may never be unjust, nor their approbation contemptible, especially in a matter where indifference is criminal.

of

Of a LOAN.

WHEN a war requires such fleets and armies as cannot be supported by the ordinary Revenue, it has been usual for a Minister to confer, in private, with a few monied men, as to the terms of *a Loan*, that is, a sum of money to be advanced to the public, in consideration of a certain Interest to be paid, and which is to be secured by a mortgage of certain taxes, to be for that purpose imposed on the public.

This mode of proceeding is certainly convenient, and may be unexceptionable, provided the bargain so made is really an equitable one, and provided Parliament examines into it strictly, to see that it is so.

But as these terms are generally of a complicated nature, containing Annuities, Lottery-Tickets, &c. the meaning of those words, and the nature of the things themselves, must be explained, and then their value will be easily computed.

Of MONEY, and therein of INTEREST,
COMMISSION, and INSURANCE.

IF a man be possessed of a sum of money, which he means to improve by employing it in trade, it will be found convenient, for the clear understanding the following pages, to consider the nature of the advantages which he ought to receive, distinguished from one another.

Thus, if we reflect that a man is entitled to whatever he has fairly acquired by his industry, we shall readily see that a compensation is due, on account of his skill and diligence in managing the trade he has embarked in; and this is equally due, whether the trade he manages is for himself or others. This profit we will call, by a general term well known in trade, *Commission*.

Secondly, If he is liable to bad debts, or to have the commodity he deals in perish on his hands, he is entitled to an allowance in proportion to that risque, or, in other words, he must raise the price of such goods as he sells, by adding to it the amount of his losses : And
this

this further allowance is well known to traders by the name of *Insurance*.

Thirdly, If instead of employing his money in trade himself, he chose to lend it to another, he would still be entitled to a compensation for the use he might have made of it; and this is what is usually called *Interest*.

The original sum of money so employed or lent, is called the *Capital* or *Principal*.

Interest in England is, by Law, confined to 5 per cent. or 5 l. by the year for the use of each 100 l. exclusive of trouble or risque; but, till lately, 4 per cent. has been long deemed an ample rate, wherever good security was given against delay or danger in the payment of the interest and principal,

OBSERVATIONS on the foregoing Chapter.

AS we must suppose that Government Security is, at least, as good as that of any individual, and as we know that 5 per cent. is the highest interest that can lawfully be taken by one man of another, it follows, that
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the public should never pay more, if so much, unless it be first shewn, that the creditor undergoes some trouble or risque.

But trouble is out of the question, because the Bank takes all the management on its own hands; therefore if more than 5 per cent. is ever paid by the public, it must be because the servants of that public have been unable, or unwilling, to give an adequate security, or else the bargain is an usurious bargain; in either case it will behove every man of property to look well about him, and to be satisfied whether the resources of his country are really at an end, or whether such loss of credit is owing to unskilful or unfaithful managers.

Of ANNUITIES.

THE word *Annuity* means any yearly payment of a regular sum of money, but is more commonly applied to a regular payment for a certain number of years, or during the continuance of certain persons lives.

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The principle on which the value of an annuity depends, is plain and simple.

Let us suppose that A borrows 100 l. of B, and that the rate of interest is to be 5 per cent. but B, wishing to encrease his income, and A willing to pay off the principal by degrees, it is determined between them that A shall pay 10 l. per ann. to B, by way of annuity, for a number of years, and then to be free from all demands: The question is, How long shall this annuity continue, so as to make it a fair bargain?

To answer this we will only consider, that at the end of the first year there is due, for principal and interest, 105 l. which the payment of 10 l. reduces to 95 l. at the end of the second year there is only due for interest, 4 l. 15 s. making 99 l. 15 s. which the 10 l. payment reduces to the sum of 89 l. 15 s. In this manner it will be found, that at the end of fifteen years there will be less than 10 l. remaining due; and consequently that the borrower who should engage to pay 10 l. per ann. for fifteen years, in consideration of 100 l. lent, would really pay more than his debt, with 5 per cent. interest.

If

If we suppose that the interest agreed on had been only 4 per cent. we must consider that the debt would have been but 104 l. at the end of a year, and the 10 l. payment would have reduced it to 94 l. consequently it would decrease faster, and, following the rule above, we shall find that in about thirteen years it would be fully satisfied.

From the above it is obvious, that the lower the interest of money is, the fewer years a given annuity should continue to be paid for a given sum; and on the other hand, the higher the interest of money is, the longer the annuity must be paid before the debt is discharged.

If we suppose the sum and the number of years it is to continue, and the rate of interest agreed on, and would know the present value of the annuity in ready money, the method of computing is somewhat more difficult, but not impracticable; for suppose, as before, that 5 per cent. is the rate of interest, and two years the time of the annuity continuing, and 100 l. the sum; then the first payment of 100 l. is proportionably greater than its present value, as 105 l. is greater than 100 l. or as 21 is greater

greater than 20; so that multiplying the 100 l. by 20, and dividing the product by 21, the quotient 95 l. 4s. 9d. is the present value of the first year's payment; and that sum, being multiplied and divided as before, will give 90 l. 14s. 1d. and the two sums added, being 185 l. 18s. 10d. are the true value of such an annuity in ready money.

It is to be hoped, that the foregoing specimen will be allowed a sufficient proof of the possibility of a person's being able to make these computations, without possessing any deep skill in calculations, though, it must be confessed, that many of them may be more readily made by other steps; but tables, ready calculated for all these questions, are to be had of every bookseller, which, as they are so useful on many other occasions, no gentleman or tradesman should be without.

As Annuities for Life have been mentioned, it is fit they should be shortly noticed, though they have not usually made parts of a Loan.

If, in a certain district, it has been observed for a length of time, that one half of all the children born died before the age of thirty

B

years,

years, and the rest lived to that age or upwards, it is plain that an even wager might be fairly laid at the birth of a child, whether it attained to that age or not.

But if of one hundred persons living at the age of thirty years, we observe how many die in each subsequent year, we shall find, that if each had enjoyed an annuity for life, some would lose theirs very soon, while others might continue to receive theirs for sixty years or more : And further, that the value of all the annuities paid, was equivalent to the value of the same annuities paid, (notwithstanding the death of any of the annuitants) for a certain number of years, and then ceasing though some of the annuitants were still alive; and suppose this number of years was found to be twenty-five, then it would follow, that, in this district, a life-annuity for a person of thirty years, would be of the same value as an annuity for twenty-five years certain, and no more.

This is enough to shew the general principle of these computations, a more particular account of which would be foreign to the present subject, unless so foolish an attempt should
ever

ever be made, as to introduce them in any great degree into our system of Finance.

Of LOTTERIES.

A Lottery is a species of gaming which admits so many varieties, as not to be easily comprehended in one definition.

The best description of such Lotteries as have been usual in England, seems to be the common Christmas game on the cards, called by the name of Lottery Tickets.

Suppose then we were all set round a table with two packs of cards, one of which was spread about, with the faces downwards.

The other pack we will suppose dealt to the company, so that each might have what number of cards he pleased, paying a penny for each card he took into a Common Stock.

Upon some of the cards spread on the table, let a part of this common stock be laid and nothing on others.

If all the cards of both packs be then shewn, and those persons who held a card similar to any of those in the other pack, on which part of the money has been laid, be entitled to take up that money, and all the cards similar to those which had no part of the common stock on them, be deemed Blanks, we shall have a true picture of the State Lottery, as to its essential properties.

In this account it is plain, that none of the players have any advantage over the other, let the prizes be of what number or inequality they may, for the smaller each prize is, the greater is the chance for any one ticket to obtain one; and, on the contrary, if they are large, the less will be the probability of their falling in any particular hand,

But if so many persons were desirous of playing, that there were not tickets enough for all, and any one, rather than stand out, should be willing to give more than a penny for one chance, it is equally plain that he would be a loser in the long-run, of just so much as he gave more than the true value of each chance: For let us suppose that, after the cards are distributed, and before they are seen, a number
 ber

ber of persons should come and offer all the players to buy their tickets of them at three-halfpence each, which is agreed to; these new comers, then, will have paid seventy-eight pence, in return for which they will have fifty-two pence divided somehow among them, and consequently they will be all together losers of twenty-six pence. Now, though it is very likely some one of these persons may be really a gainer, by having obtained a large prize, yet, if he repeats the experiment often, he may depend on finding, in the long-run, that fortune will find some body else to favour, while the dead weight of the extraordinary price he has paid is constantly operating to his loss.

The State Lottery in England has, of late years, been made to consist of 50 or 60,000 tickets, each of the value of 10 l.

The amount has been divided into prizes of different sums, from 20 l. to 20,000 l.

This has been always found a great temptation to the spirit of gambling, as by this any person might, for a small sum, stand a chance of making a considerable fortune.

Would

Would it were clear, that this delusive hope had not frequently led individuals into the commission of crimes, as well as prejudiced the public, by converting a habit of industry into a rage for play!

But it is time to consider the effect of this Lottery, as it regards our subject, a *Loan*.

Experience has shewn, that if a Lottery contains no more than 60,000 tickets of 10 l. each, there will be so many adventurers who desire to be concerned, as will enable the original holders of the tickets to sell their chances at 12 l. 10 s. each, so that they are sure of a clear profit of 50 s. on each ticket, without any risque. And, further, it is observed, that if the number of tickets does not exceed 50,000, they will produce a profit in the same manner of 3 l. each.

When these, therefore, are given at the original value to the subscribers in a Loan, the public have a right to expect, that the certain profit annexed to them, shall be deemed as so much given to such subscribers.

Thus,

Thus, when Government borrowed Six Millions in the present war, a Lottery was established of 48,000 tickets, of which every subscriber of 1000 l. had eight, which was really giving him 24 l. at least, and at that additional price they might have been sold, had there been no Loan.

But this is a trifling addition to the price of a ticket, compared with what is taken by the new-licensed Lottery Offices; if their schemes were computed, there might be some hopes that mankind might become ashamed of the folly of submitting to such imposition.

It is impossible to quit this subject, without offering one short rule for computing the impositions in most of these schemes; and that is, let any person, to whom a proposal is made to purchase a Share or Chance, suppose that he had purchased every number in the whole Lottery on the same terms, and then observe what proportion his loss would bear to the sum he adventured.

Though many of their plans are too complicated to be very easily solved by those who are not conversant in calculations, yet the
above

above short rule will answer a much greater number of them than one would at first imagine.

Of the THREE PER CENT S.

IT has been usual, of late, to give the subscribers to a new Loan, what is called 3 per cent. stock; that is, for 100 l. subscribed, they are to have a perpetual interest of 3 l. until the capital is paid, and whatever Annuity or Lottery Ticket is given to them besides, it is only as a make-weight; that is, if money be really worth 4 per cent. at the time of borrowing, then 100 l. bearing 3 per cent. only, would be of no more value than 75 l. and consequently the lender should have something more to the amount of 25 l.

There is a fallacy in the above reasoning, which does not belong to this place to be explained; it is sufficient for the present purpose, to say that the price the 3 per cents. bear in the market, is the rule generally observed in estimating the Loan.

Of

Of *FOUR PER CENTS.*

WHAT has been said of the 3 per cents. may be applied to those, as they differ only in the circumstance of their value.

Of *PREMIUM, BONUS, and DISCOUNT.*

THESE words have been introduced, as terms of art, into the business of the public debts, to the great confusion of those who only deal in plain Sense and plain English; But we will try to have them understood.

Premium signifies, literally, a Reward, and is used in the Alley to express that reward which a man gets for his care in making a good bargain for himself: If a farmer buys a beast for ten guineas, which is worth eleven guineas, he may always have a guinea for his bargain.

Thus, in the last Loan, every nominal lender of 100 l. did, in reality, only lend the public 97 l. for which he receives 5 l. 10 s. per ann. interest, or about five and two-thirds per

C

cent.

cent. and this to continue for ever, as we cannot oblige the lenders to receive their capital, without paying them 175 l. for every 97 l. lent.

Hence every subscriber to that Loan was thought to have made so good a bargain for himself, that he might the next week receive from 10 l. to 11 l. for every 100 l. he let another have instead of himself, and this is, in 'Change-Alley language, 10 or 11 per cent. *Premium.*

This may be called so much public money given to the lender for nothing, and at 10 per cent. on twelve millions, amounts to Twelve Hundred Thousand Pounds, and at 11 per cent. was a loss of more than a year's pay and cloathing of One Hundred Thousand soldiers.

Bonus seems to be a word newly introduced by some Stockjobber of better education than the rest, who had been long enough at school to learn that it was latin for *Good*, and, therefore, thought it a proper term for any thing that might be called, in a vulgar phrase, *so much to the Good.*

But

But whether this is a true account of the wit of it or not, is of no consequence, provided we are acquainted with its meaning: The word is used to signify so much of the real value of any security, more than 100 l. as is to be given to the lender of 100 l. as for example:

Suppose every subscriber of 100 l. towards a Loan, is to have,

	£.	s.
1st, 100 l. in the 3 per cents. when the true value is computed to be	75	0
2d, A certain Annuity for a fixed time, whose true value is computed at	24	0
3d, A Lottery Ticket at its original value, by which he will have a profit of	2	10

Total £ 101 10

Then the value of his security being thirty shillings more than he pays for it, he is said to have a *Bonus* of that sum.

Bonus and *Premium* differ in this only; while the profit of the subscriber is in contemplation, and still liable to be affected by an alteration in the price of the Stocks, it is called *Bonus*; but

but when he has actually carried his security to market, and received the value, it is called *Premium*.

Discount is, properly speaking, an allowance made out of a sum of money, which is to become due at a future day, in consideration of immediate payment.

There are few persons in trade who have not allowed *Discount* at a banker's, on account of receiving cash for a bill that had some time to run, as it is phrased.

But as the word regards a Loan, it is used in a sense somewhat different, as will be better understood by an example.

In the last Loan the interest commenced at the beginning of the year, but the whole sum borrowed was not then paid into the bank, a small part only was advanced directly, and the rest at different payments, so far asunder, that it was near the end of the year before the public had received the whole,

Now, as the public did not make a discount on any part of their payments, on account of the
lenders

lending retaining the money in their own hands, it is plain that those lenders did really profit so much as the discount, which the public might have made, amounted to; and this being liquidated on the different sums and times, amounted to a sum equal to about 2 per cent. on the whole twelve millions, and this was a profit of Two Hundred and Forty Thousand Pounds, nearly equal to the pay and cloathing of Twenty Thousand soldiers.

CONCLUSION.

THE foregoing sheets were intended as the introduction to a larger work, which, if there is an appearance of the public's giving a sufficient attention to it, will follow this.

But, in the mean-time, it was thought necessary to commit the above to the press, lest a new Loan, on more extravagant terms than the last, should reduce the nation to an insupportable state of poverty, before we were aware of our danger.

The author of this little tract only desires to be found a real friend to his country.

He

He is sensible that many inaccuracies must have found their way into his language and manner of expression, but believes he may safely affirm that there is nothing but exact truth in the substance of what he has written, and, perhaps, shall write on the subject.

For the present he will take leave of his readers, with a short rule for computing any future Loan, which may be made on the principles adopted of late years.

1st, Fix on a rate of interest, as suppose 4 per cent.

2d, Whatever 3 per cent. or 4 per cent. Stock is given to the subscribers, set down its true value at the rate of interest fixed on.

3d, If any annuity is to be given, look into Dodson's Calculator, or Price's Book on Annuities, or some of the many other similar publications, in which you will find a table, containing the value of an annuity of 1 l. for any number of years, at the different rates of interest. In this case look under 4 per cent. and there you will find the sum an annuity of 1 l. is worth; if the annuity given be more or less than 1 l. then

then by the Rule of Three, as 1 l. to the given annuity, so is the sum in the tables to the sum required, which is the true value of the given annuity at 4 per cent.

The above values added together, make up the value given by the public to the subscribers, and if it exceed 100 l. it is so much given to them over and above the interest fixed on.

Besides this, if the money be not all advanced when the interest commences, discount must be reckoned; if the times of payment are as last year, it will be about two-fifths of a year's interest on the whole sum, or 1 l. 12 s. on 100 l. at 4 per cent.

If each subscriber has four Lottery Tickets to 1000 l. it will be four-tenths or two-fifths of a ticket for each 100 l. this will come to 20 s. or 24 s. for 100 l. according as the number of tickets be greater or less, in the whole Lottery. The two last sums must be subtracted from 100 l. and the remainder is the sum really lent to the public.

If the same operation be repeated, with different rates of interest, as four and a half and
five

five per cent. the exact value of the bargain may appear to any one, who has no more skill in figures than the four Rules of Arithmetic and the Rule of Three.

Farewell, make the right use of this.

APPENDIX.



A P P E N D I X.

O the LOANS for 1781 and 1782.

TO exemplify the foregoing sheets, we will apply the rules to the two last Loans.

In 1781 a subscriber to the Loan had, for every 100 l. subscribed, 150 l. in the 3 per cents; 25 l. in the 4 per cents; besides which he had a profit of about 1 l. 4 s. in the Lottery, and about two-fifths of a year's interest on his money before he lent it to the public.

Now if money was supposed
worth five per cent. his
150 l. in the 3 per cents
would be equal to

£. s. d.

90 0 0

His 25 l. in the 4 per cents

— 20 0 0

Lottery Tickets

— 1 4 0

Discount

— 2 0 0

Total £ 113 4 0

In

In 1782 a subscriber of 100 l. had 100 l. 3 per cents; 50 l. in the 4 per cents; three-tenths of a Lottery Ticket; and almost half a year's interest for his money before it was lent; but we will only call this last article two-fifths as before. The Lottery consisting of fewer tickets, it is natural to suppose they will sell higher; if they keep exact proportion with what has been observed in former Lotteries, (and there is no reason to suppose the contrary) the profit on each will amount to 3 l. 14 s. but we will only call it 3 l. 10 s. He has moreover an annuity of 17 s. 6 d. for seventy-eight years.

If money be deemed worth 5 per cent. his account will stand as follows :

	£.	s.	d.
100 l. in the 3 per cents is worth	60	0	0
50 l. in the 4 per cents is worth	40	0	0
An annuity for 78 years is worth	17	1	3
more than 19 years and a half's purchase			
Three-tenths of a Lottery Ticket	1	1	0
Discount	—	—	2 0 0

Total £ 120 2 3

The

The Loan of the last year has been already very generally censured, while that of the present has, to my great surprize, been treated as less disadvantageous ; the two foregoing statements, to the fairness of which, it is to be hoped, by this time, that every reader is a competent witness, will serve to demonstrate the contrary ; for deducting the total, as stated under the year 1781, from that under the year 1782, it will appear that the public, for every 100 l. is at the advanced loss of very near the sum of 7 l. per cent.

			£.	s.	d.
1782	—	—	120	2	3
1781	—	—	113	4	0

Given by the Public to the
 Lender, in the year 1782 } £ 6 18 3 per cent
 more than in 1781

If we now suppose money to be worth 6 per cent. a subscriber's account will stand thus :

	£.	s.	d.
100 l. 3 per cents, is worth	—	50	0 0
50 l. 4 per cents, is worth	—	33	6 8

Carried over £ 83 6 8
 D 2 Annuity,

£. s. d.
 Brought over £ 83 6 8
 Annuity, almost 16 and a half } 14 8 6
 year's purchase
 Lottery Ticket — — — 1 1 0
 Discount — — — 2 8 0
 £ 101 4 2
 Leaving a Bonus of 1 l. 4 s. 2 d. besides six
 per cent. interest.

THE END.

